01DC055 Metal Plate Thickness Classification In Eddy Current Testing Using Support Vector Machine

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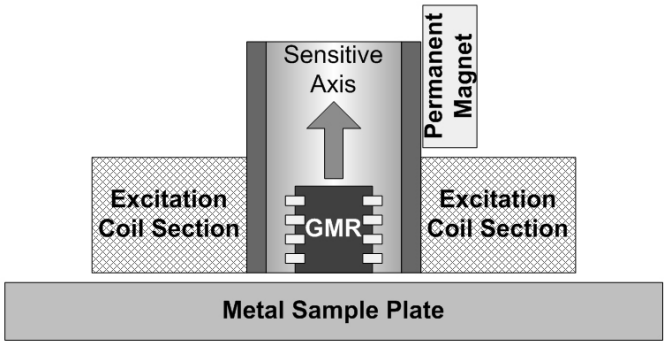
Eddy current testing (ECT) is a non destructive technique that can be used in the measurement of conductive material thickness. In this work ECT and a machine learning algorithm (support vector machine -SVM) to classify the thicknesses of three different types of conductive plates: two aluminium and one stainless-steel alloys. Eddy currents are induced by imposing a voltage step in an excitation coil, while a giant magnetoresistor (GMR) magnetic sensor measures the transitory magnetic field intensity in the sample vicinity. An experimental validation procedure, including machine training with linear and exponential kernels and classification errors, was made for each metal type with sets of sample thicknesses up to 7.5 mm.



Probe with excitation coil, GMR, permanent magnet and sample plate.

01DC056 ECT Characterization of a Linear Defect from Multiple Angle Measurements

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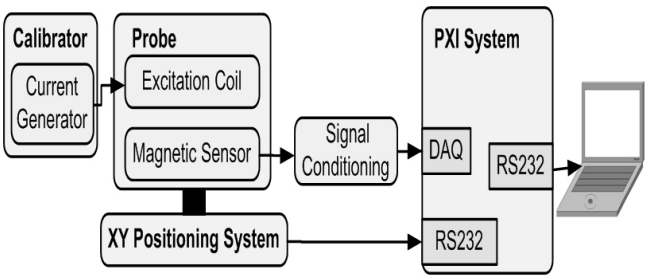
This paper presents the characterization of a linear defect at several angles of rotation by a measurement system based on eddy current testing (ECT). The eddy current probe includes a planar coil and a giant magnetoresistor (GMR). The spatial eddy current distribution for each angle is obtained by an algorithm based in an image reconstruction technique solving the Biot-Savart inverse problem.



Experimental Setup.